Stoller
Hanford Office

DOE-EM/GJ964-2005

299-E26-52 (A6645)
Log Data Report

Borehole Information:

Borehole: 299-E26-52 (A6645)			**Site:** 216-A-24 Crib		
Coordinates (WA St Plane)		**GWL[1] (ft) :** None		**GWL Date:**	08/15/05
North (m)	**East (m)**	**Drill Date**	**Ground Level Elevation (ft)**	**Total Depth (ft)**	**Type**
136372.99	575620.976	08/81	650.95	53	Cable

Casing Information:

Casing Type	Stickup (ft)	Outer Diameter (in.)	Inside Diameter (in.)	Thickness (in.)	Top (ft)	Bottom (ft)
Welded Steel	4.35	6 5/8	6 1/8	1/4	4.35	53

Borehole Notes:

Casing diameter and casing stickup measurements were acquired by the logging engineer using a caliper and steel tape. Measurements were rounded to the nearest 1/16 in.

Logging Equipment Information:

Logging System: Gamma 1E			**Type:** SGLS (70%) SN: 34TP40587A
Effective Calibration Date: 03/04/05		**Calibration Reference:**	DOE/EM-GJ854-2005
		Logging Procedure:	MAC-HGLP 1.6.5, Rev. 0

Spectral Gamma Logging System (SGLS) Log Run Information:

Log Run	**1**	**2 Repeat**	**3**		
Date	08/16/05	08/17/05	08/17/05		
Logging Engineer	Spatz	Spatz	Spatz		
Start Depth (ft)	53.0	25.0	14.0		
Finish Depth (ft)	15.0	15.0	5.0		
Count Time (sec)	100	100	100		
Live/Real	R	R	R		
Shield (Y/N)	N	N	N		
MSA Interval (ft)	1.0	1.0	1.0		
ft/min	N/A[2]	N/A	N/A		
Pre-Verification	AE095CAB	AE097CAB	AE097CAB		
Start File	AE096000	AE097000	AE097011		
Finish File	AE096038	AE097010	AE097020		
Post-Verification	AE096CAA	AE097CAA	AE097CAA		
Depth Return Error (in.)	0	N/A	0		

Log Run	1	2 Repeat	3		
Comments	No fine gain adjustment.	No fine gain adjustment.	No fine gain adjustment.		

Logging Operation Notes:

Logging was conducted with a centralizer on the sonde. Logging data acquisition is referenced to the top of casing. A repeat section was collected in this borehole to evaluate system performance.

Analysis Notes:

Analyst:	Henwood	Date:	08/23/05	Reference:	GJO-HGLP 1.6.3, Rev. 0

Pre-run and post-run verifications for the logging system were performed before and after the day's data acquisition. The acceptance criteria were met.

A casing correction for 0.25-in.-thick casing was applied to the log data.

SGLS spectra were processed in batch mode using APTEC SUPERVISOR to identify individual energy peaks and determine count rates. Concentrations were calculated with an EXCEL worksheet template identified as G1EMar05.xls using efficiency functions and corrections for casing, water, and dead time as determined from annual calibrations. No corrections for dead time or water were necessary.

Log Plot Notes:

Separate log plots are provided for the man-made radionuclide (^{137}Cs) detected in the borehole, naturally occurring radionuclides (^{40}K, ^{238}U, ^{232}Th [KUT]), a combination of man-made, KUT, and dead time, and total gamma plotted with dead time. For each radionuclide, the energy value of the spectral peak used for quantification is indicated. Unless otherwise noted, all radionuclides are plotted in picocuries per gram (pCi/g). The open circles indicate the minimum detectable level (MDL) for each radionuclide. Error bars on each plot represent error associated with counting statistics only and do not include errors associated with the inverse efficiency function, dead time correction, casing corrections, or water corrections.

A comparison plot of the Westinghouse Hanford Company Radionuclide Logging System (RLS) data acquired in 1995 with the current SGLS data is provided.

Results and Interpretations:

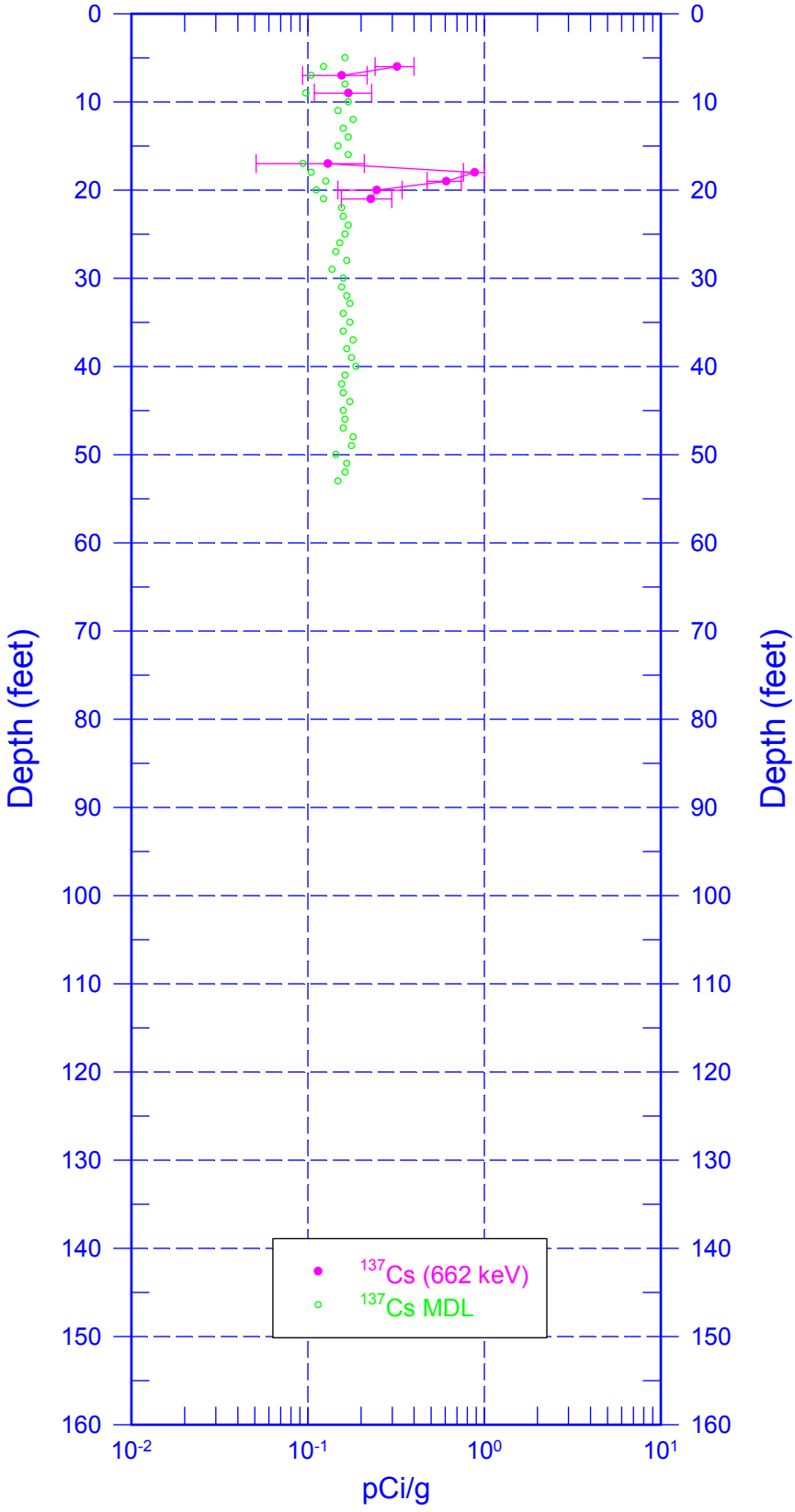
^{137}Cs was the man-made radionuclide detected in this borehole. ^{137}Cs was detected from the ground surface to 9 ft and from 17 to 21 ft; the maximum concentration was measured at approximately 1 pCi/g at 18 ft.

The comparison of SGLS and RLS ^{137}Cs concentrations shows good agreement after correcting for decay, indicating no significant changes have occurred since 1995.

The repeat section indicates good agreement of the naturally occurring KUT and ^{137}Cs concentrations.

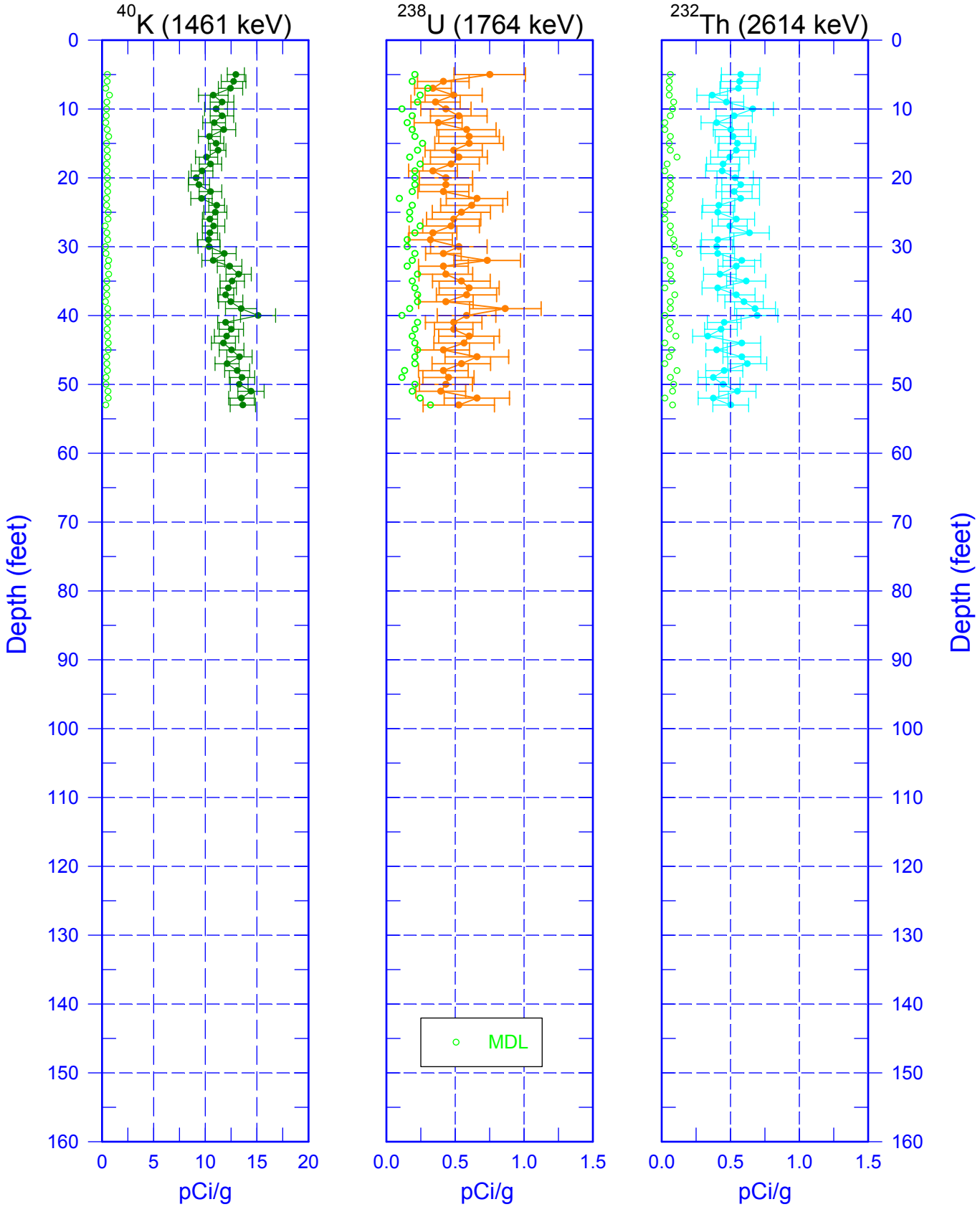
[1] GWL – groundwater level
[2] N/A – not applicable

299-E26-52 (A6645)
Man-Made Radionuclides



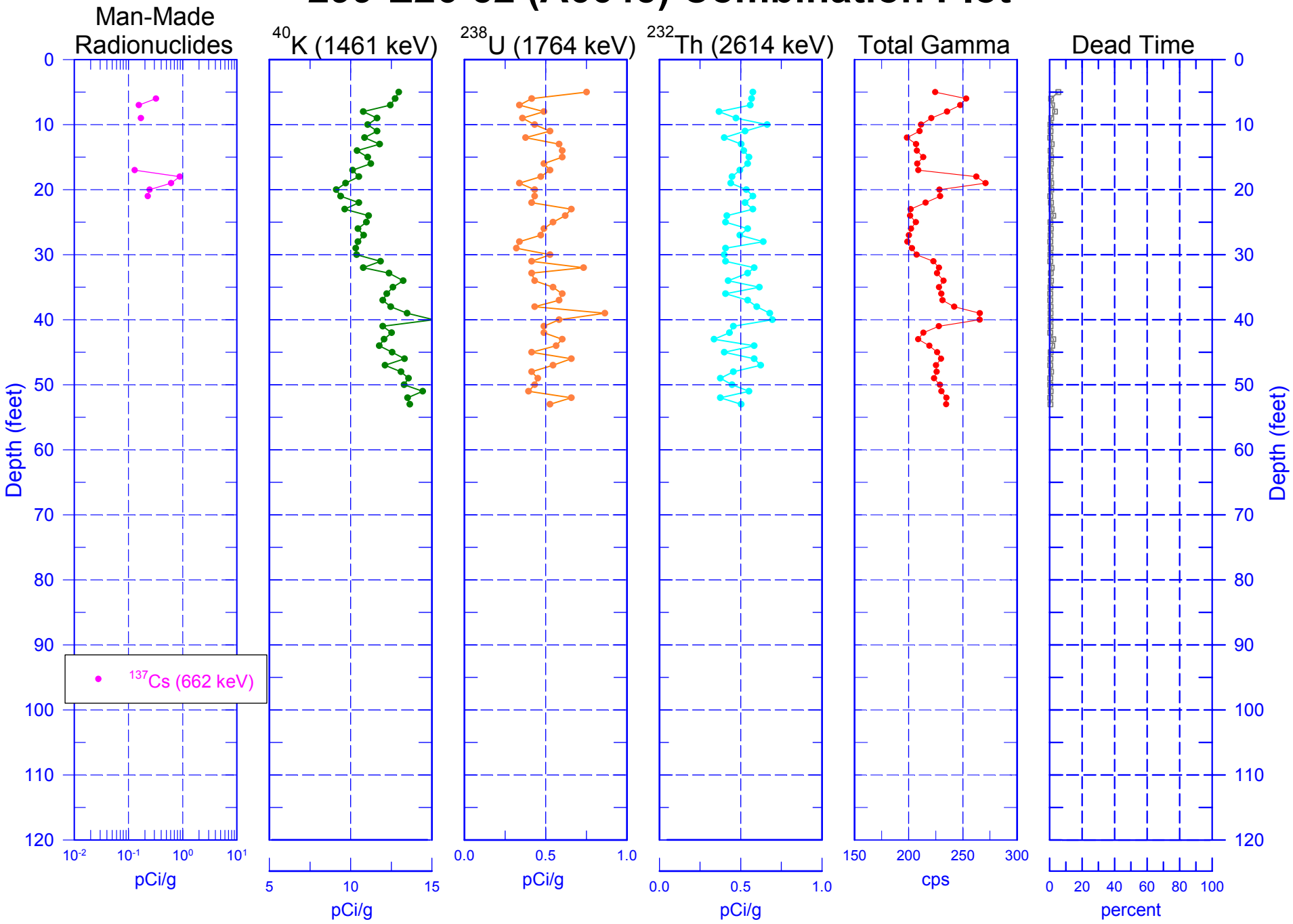
Zero Reference - Top of Casing

299-E26-52 (A6645)
Natural Gamma Logs



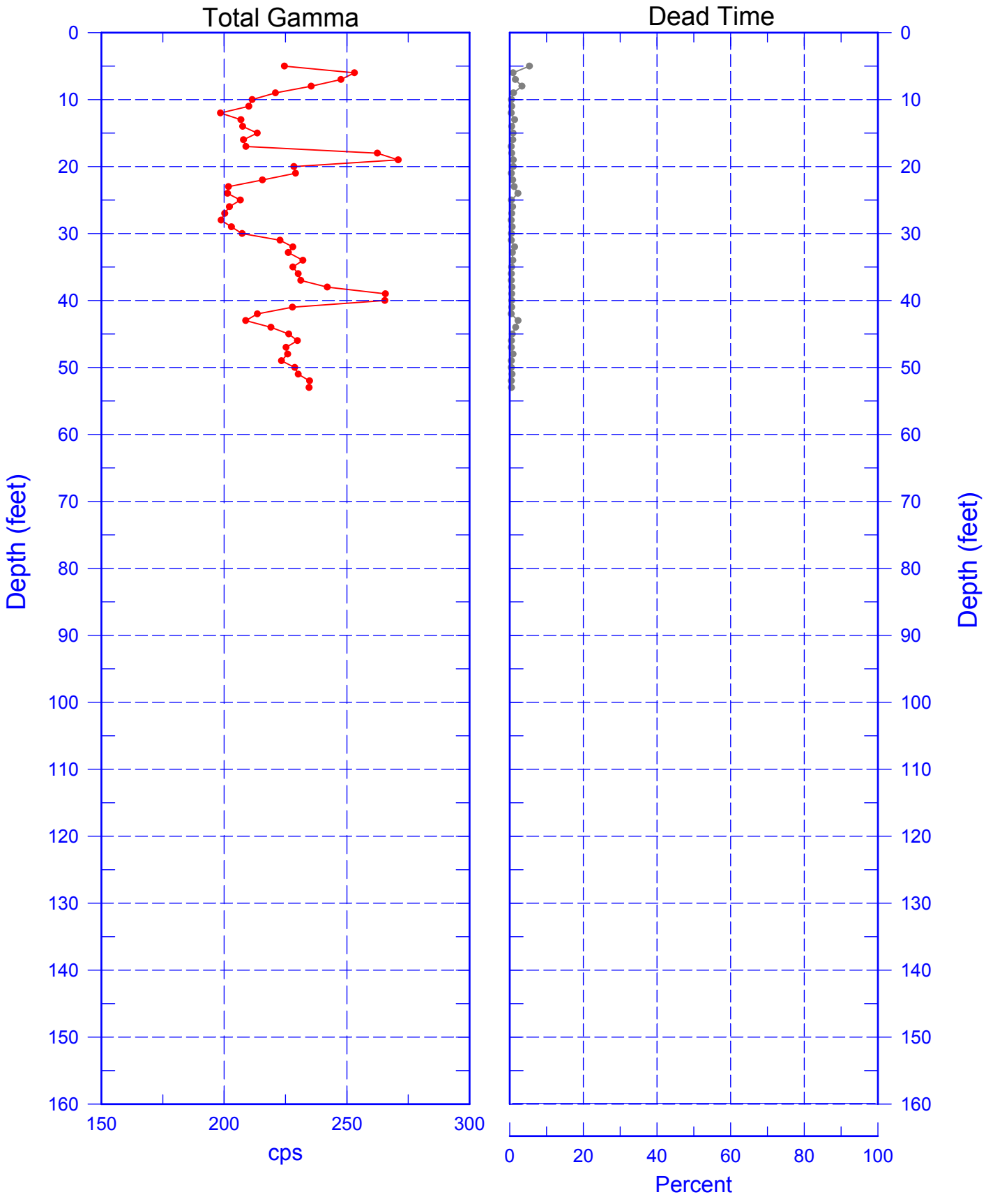
Zero Reference = Top of Casing

299-E26-52 (A6645) Combination Plot



Zero Reference - Top of Casing

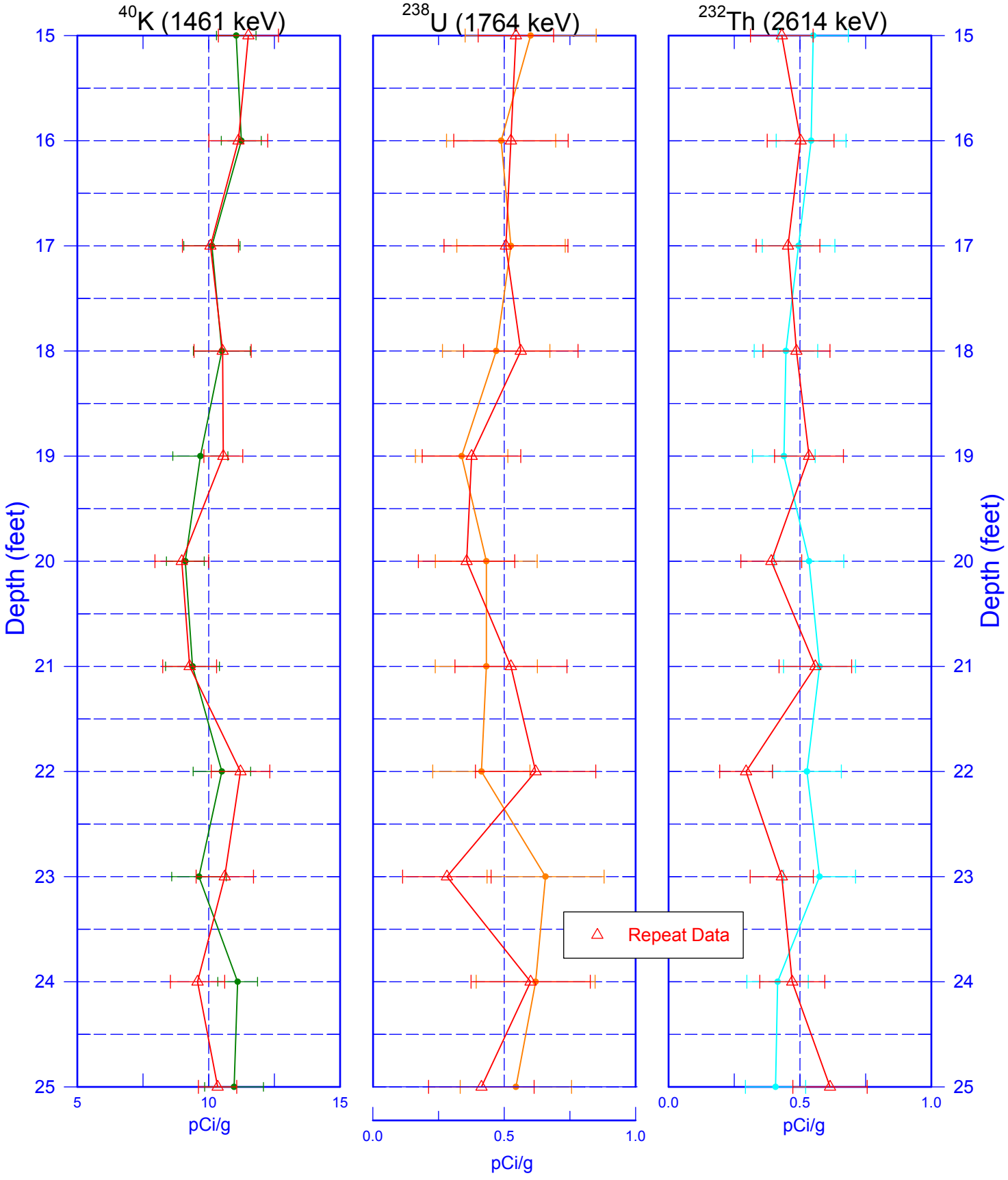
299-E26-52 (A6645)
Total Gamma & Dead Time



Reference - Top of Casing

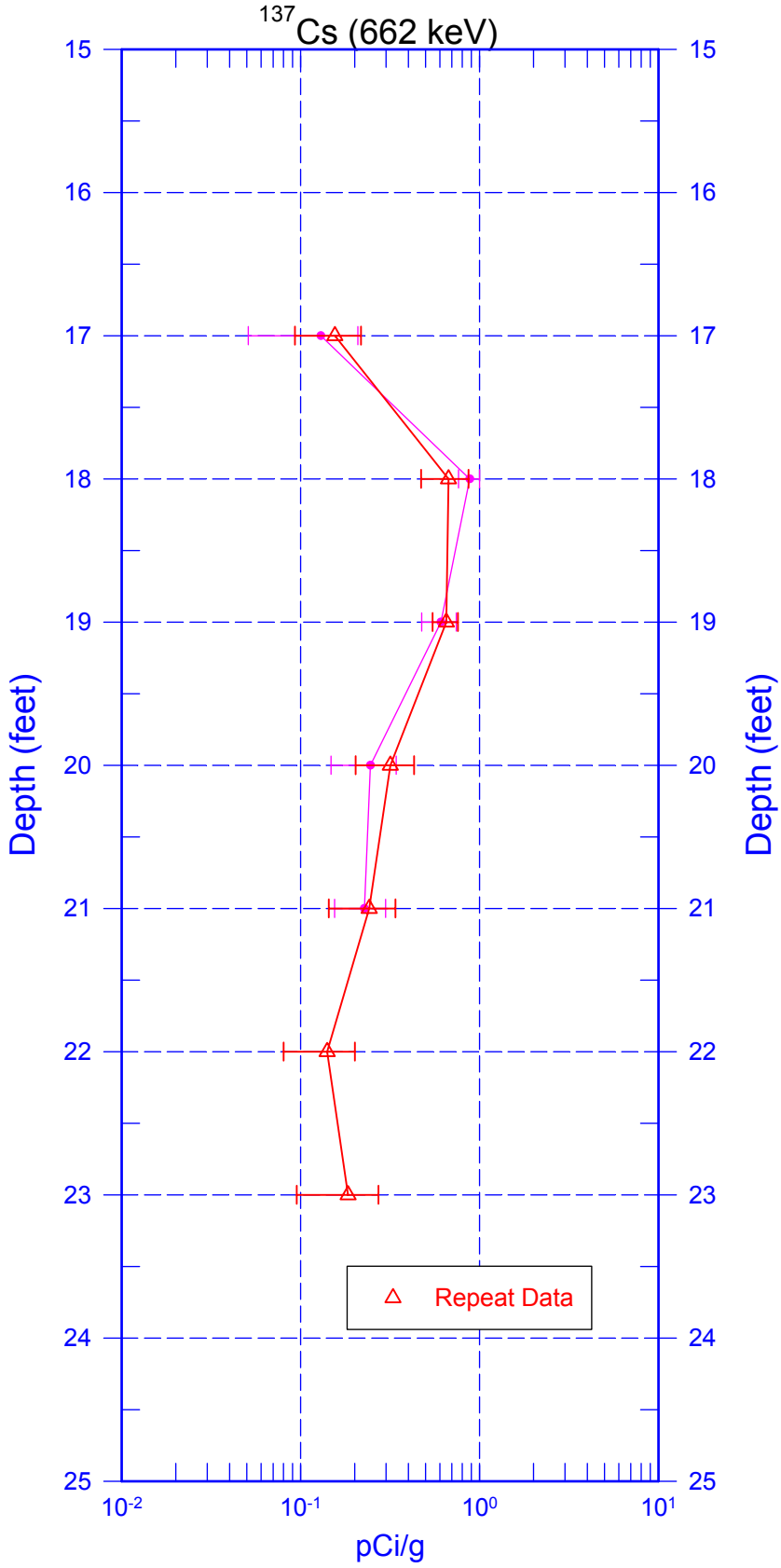
299-E26-52 (A6645)

Repeat Section of Natural Gamma Logs



Zero Reference - Top of Casing

299-E26-52 (A6645)
Repeat of Man-Made Radionuclides



Zero Reference - Top of Casing

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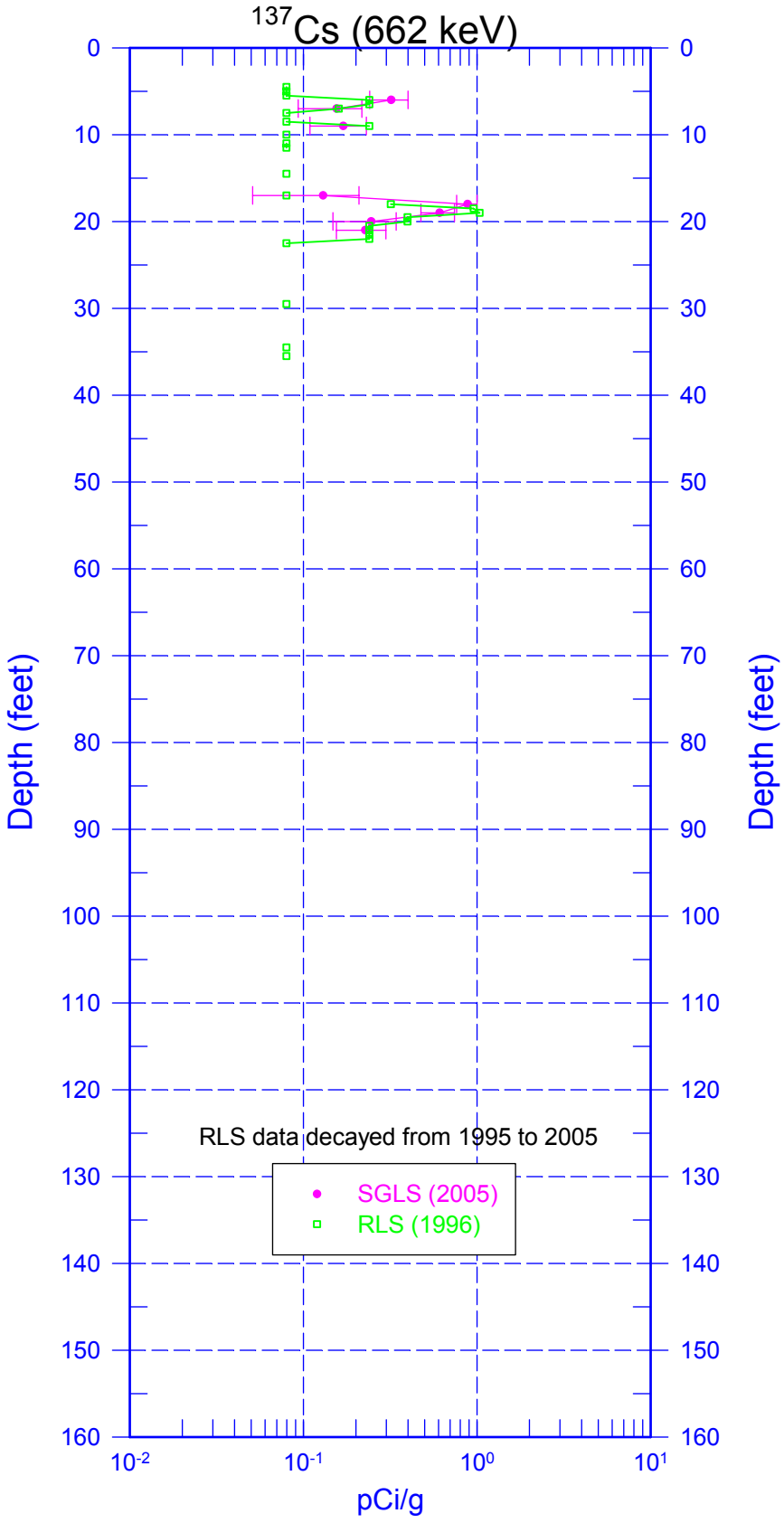
SGLS & RLS Comparison



Zero Reference - Top of Casing